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ABSTRACT

A study examined when, how, and with whom literacy acquisition occurs in the school setting. The study developed an observation technique, focused on how it evolved, how it could be applied to the classroom setting, and how data from classroom observations over time can be interpreted. Subjects were 243 children deemed to be at risk of future academic failure who attended half-day class in one of two schools for the entire pre-kindergarten school year. Subjects were in a district-developed program called Early Start that heavily emphasized language and encouraged active participation of the children through both self- and teacher-directed tasks. The framework of emergent literacy dictated the definitions of observation categories. Results indicated that: (1) children engaged mostly in free-choice activities; (2) children worked independently with materials for about half of the observations, and were involved with literacy for 35% of the observations; and (3) the literacy learning process that teachers used most often was that of encouraging students to self-direct their activities. Findings suggest that the coding system and guidelines for interpreting the data collected using this classroom observation system demonstrate the value of observing literacy in classroom settings. (Contains 13 references and six figures of data. An example of an observation sheet is attached.) (Author/RS)

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Abstract

This report suggests a new way of studying preschool and kindergarten classrooms that is guided by emergent literacy theory. The technique for analyzing emergent literacy in classrooms was developed during a year of intensive classroom observations of children attending a state-funded, district-sponsored, developmental preschool program for children at risk of academic failure. The purpose of the observation was to understand when, how, and with whom literacy acquisition occurs in the school setting. This report focuses on how the observation scheme evolved, how it can be applied to classroom setting, and how data from classroom observations over time can be interpreted. The framework of emergent literacy dictated the definitions of observation categories. The report describes the coding system in detail so that others can use the system or modify it to fit their goals. It also discusses the guidelines for interpreting data collected in this manner so that the value of observing literacy in classroom settings becomes apparent.

Studying Emergent Literacy in a Classroom Environment

The term *emergent literacy* is attributable to Clay (1979) and implies development of reading and writing processes (Teale & Sulzby, 1986). An *emergent literacy perspective* is a view of the roots of children's reading and writing development and the role of others in fostering literacy development. In this view, children are active generators of hypotheses about literacy and, by interacting with literate people around them, they get a chance to develop into conventionally literate people.

Some classroom teachers have adopted this approach to introduce children to literacy. Prior to the emergent literacy perspective, the role of preschool and kindergarten was viewed as that of preparing children for reading by training them in general cognitive and motor tasks. It is believed now that children need to have a wide range of opportunities to explore literacy materials and activities with the support of their teachers so that they will acquire foundation concepts about reading (Allen & Mason, 1989; Mason, 1989; Mason & Sinha, 1993). As a result, classrooms will differ from traditional classrooms in structure, organization, and interaction patterns, as well as their literacy content. However, there are varying approaches to early literacy activity, and these approaches need to be compared and studied using new observational instruments. This report suggests a new way of studying preschool and kindergarten classrooms that is guided by emergent literacy theory.

The technique for analyzing emergent literacy in classrooms that we present in this report was developed during a year of intensive classroom observation. The children we observed attended a state-funded, district-sponsored, developmental preschool program for children at risk of academic failure. One goal of the observation scheme we developed was to understand when, how, and with whom literacy acquisition occurs in the school setting. A second goal was to obtain process information for evaluation of an experiment in which shared-reading activities with Little Books were added to the regular preschool program (McCormick & Mason, 1990). In this report, we focus on the first goal. The second goal is discussed in Mason, Kerr, Sinha, and McCormick (1990) and Mason, Sinha, and Kerr (1991).

This report focuses on how the observation scheme evolved, how it can be applied to a classroom setting, and how data from classroom observations over time can be interpreted. The framework of emergent literacy dictated the definitions of observation categories. We discuss the evolution of the coding system because the problems encountered and changes made in the original observation scheme reflect basic theoretical issues involved in studying children's early literacy process. We describe the coding system in detail so that others can use the system or modify it to fit their goals. Finally, we discuss guidelines for interpreting data collected in this manner so that the value of observing emergent literacy in classroom settings becomes apparent.

Method

Participants

The participants in our study were 243 children who attended half-day class in one of two schools for the entire pre-kindergarten school year. Based on a locally administered test, all of the children were deemed by the school district to be at risk of future academic failure. Most of the children came from families with an income level below $15,000 a year. About half were African-American, and 11 were from families whose first language was not English. The sample contained an equal number of boys and girls, with an average age of 4.5 years (*sd* in months = 3.68).

The children were in a district-developed program called Early Start (a variant of High Scope). (A detailed description of this program is reported in McCormick, Kerr, Mason, & Gruendel, 1992.) The program heavily emphasizes language in its curriculum and encourages active participation of the children through both self- and teacher-directed tasks. The classroom schedule consisted of teacher-

directed whole- and small-group activities; free-choice activities (termed discovery time); routine activities, which included clean up/restroom, snack, closing time, and dismissal; and playground or gym. The classrooms contained the following centers: art, science, fine motor work, dramatic play, listening, water table (or some other tactile material), library, block area, and privacy area. Each also had a teacher's desk, a large rug, and tables and chairs, and most classroom also had a piano and/or computer.

Procedure for Observing

We observed all of the children in each classroom for full class days, beginning within the first three weeks of the school year and repeating the observations at least four other times during the year. We believed that once-a-month observations (except for December and May) would be ideal, but because the first two months were used to develop our observational scheme, and because one of the schools began operating in October, we completed five or six observation days in 10 classrooms and four observation days in 2 classrooms. Each child was observed an average of 15 times in each visit, with a range of 4-26 times. Several factors reduced the number of times a child was observed: a large number of children in a class, short days due to special all-school programs, and occasional pull-out activities for a few children.

Prior to visiting a class, we prepared an alphabetized class list with columns for coding the classroom context and for describing children's literacy activities. (See Appendix 1 for an example of an observation form.) The observation form included a place to note the time each observation round began. We defined an observation round as one observation of all children present in the classroom. Depending on the number of children in the classroom, an observation round took 5-10 minutes. The exact sequence of names was followed during each round of observations. Observations began when class began. The observer noted the time at the top of the page, then located the first child on the list, and coded the context and behavior occurring at that instant. The observer moved on immediately, scanning the room for the next child on the list, coded the context and that child's behavior, and so on to the end of the list. Then, the next observation round began and proceeded as described.

Our approach effectively captured children's class activities, and we used this approach instead of watching each child for a fixed 5- or 10-second time span. Children of this age are very active, and with the freedom given to the students in some programs, particularly in Early Start, they shift activities or behaviors frequently, often within a 5- or 10-second span. Coding for fixed time spans would force observers to choose which activity to record and could cause bias in the data. Therefore, the timing flexibility of our approach more closely matches the variability of children's movements around the class.

An important rule of the observation system was that the first activity the child was engaged in when she or he was first located was recorded. The observer was not to wait for the child to do something "more interesting" or more literacy-oriented. Even if a child was trying to get ready for an activity, such as moving to join in choral reading with the teacher, the observer noted the transition behavior rather than waiting until the child began reading chorally. We adopted this rule to avoid observer bias and to provide an exact picture of children's classroom behavior.

A second rule was that the observer was to limit all observations to the classroom. We did not code activities in the hall, outdoors, gym, bathroom, and tutored lessons in other rooms. Although this resulted in the loss of some group and individual data, it retained the goal of describing literacy in the classroom. Thus, a child who was present in school but had left the classroom was not observed for that period of absence and received codes of *other* for that round of observations. Likewise, we did not code children who were absent for the day. But variations of this nature did not matter because the central question of this research was in regard to the *proportion* of literacy behavior to all behaviors. We

resolved the uneven total number of observations per child by transforming all coded frequencies into proportions.

During the classroom day, we did not code the routine activities when *all* of the children were engaged in the activity (e.g., eating a snack, standing in line to leave the room, or putting on outdoor clothes). During transition into or out of routine, however, all activities were observed. We applied this rule because literacy activities seldom took place during routines, but did occur for some children who were not yet engaging in routine activities.

One disadvantage of our observation system is that, unlike observation systems used in studies to measure engaged time per activity (Rosenshine & Stevens, 1984), our coding does not determine observed time for each activity. It would be faulty to make conclusions about the percentage of time children are engaged in any particular activity based on our coding system. A second minor problem is that because the sequence of children's names is the same for every round, children at the beginning of the class list have a slightly higher chance of being observed more often than children toward the end of the list. For example, if midway through a round of observation, the teacher decided to take the class to the gym, then the children at the lower half did not get coded as being involved in a class activity, but rather got coded as engaging in routine lining up. Also, the sequences of a child's behaviors cannot be categorized accurately because each child was revisited at 5- to 10-minute intervals. Moreover, because teachers' moves were not followed, it was not possible to describe how teachers organized or maintained literacy activity in the classroom as a whole or with particular children. Instead, the system is focused on the child's behavior within a particular classroom setting. Nevertheless, by summing behaviors of children in each classroom, some classroom and teacher comparisons can be derived.

We recorded observations in two ways: by using codes for easy-to-judge categories and by verbal descriptions for difficult-to-judge categories. The first two components of an observed event, the class-organization and interactions, were easy to judge, and therefore coded with letter mnemonics; the third component, the nature of literacy, was described in a phrase or two on the coding form. Then, when entering data on the computer, coded letters were transformed to numbers and the literacy description was further subdivided and coded in terms of the literacy source and the literacy-learning process. Thus, a description of the original observed literacy activity is kept for purposes of checking reliability of coding and for real examples. The coded categories allow statistical analysis of the data. Figure 1 contains a summary of the final coding plan.

[Insert Figure 1 about here.]

Development of Observation Categories

In the first month, we observed in the classrooms to develop the coding system. At this stage, lacking coding categories, we observed each classroom for a half day and wrote out brief descriptions of each child's activities, including interactions with others. We also noted how the classrooms were structured for learning. We next met as a research group to develop significant categories from these notes. We came up with five activity categories that were intended to differentiate all of the children's activities and be mutually exclusive. A child could be engaged in one of the following five categories:

a. Play

b. Routine

c. Interaction

d. Non-involvement

e. Literacy-related activity

This categorization system was tried in the next month, but still was accompanied by full written descriptions of classroom structure and type of activity. The system did not work, because too many overlaps in the categories caused unfounded judgments during coding. For example, if the child was engaged in a routine activity but was also talking to someone, would the classification be routine or interaction? If the child was being read to by the teacher, it seemed folly to code this merely as literacy activity because the event that we observed was also interaction with the teacher in a group setting. Close study of the categories revealed that they conflicted because they represented different components of each observed event. To illustrate, let us use the following activities:

a. Teacher reads to child in small-group setting

b. Teacher reads to child in whole-group setting

c. Teacher and child read together during free-choice time

d. Child plays housekeeping with another child

In these example activities the conflicts are clear: activities a, b, and c could be coded as either interaction (child and teacher) or literacy-related; activity d could be coded as play or interaction (child with child). In a, b, and c, even if we coded the activity as literacy-related or interaction, we did not capture the teacher's organizational plan. The activities reveal different class organizations: small-group, whole-group, and free-choice. The first two activities reveal the teacher's plans about literacy activities, and the third and fourth reveal the child's preference.

We decided to resolve the problem by simultaneously coding three dimensions for each observed activity. The first dimension was the *Class Organization*, the second dimension was the *Interaction Pattern*, and the third dimension, our area of specific interest, was whether the activity involved *literacy*. The first two dimensions combine to define the context of literacy learning, and the third captures the actual nature of literacy involved by describing the kind of literacy material and the nature of the literacy-learning process. When an event is not literacy-related, it is not described. If the observer is not sure, the activity is written down and a judgment later applied. This three-part division captures observed events accurately. So, with this scheme of coding, we would code the earlier examples in the following manner:

	Class Organization	Interaction Pattern	Nature of Literacy Activity
a.	Small-group	Teacher	being read to
b.	Whole-group	Teacher	being read to
c.	Free-choice	Teacher	being read to
d.	Free-choice	Child	non-literacy activity

To finalize this method of observation, we made a few minor changes. Some subcategories were added or collapsed as needed. This system was then retroactively applied to the first two months of data collection (recoding was possible because of the written descriptions) and used for all subsequent observations.

Final Categories of Observation

The final coding system contains simultaneous observation of three dimensions: Class Organization, Interaction Pattern, and Literacy Activity. Within each category are three or more subcategories or characteristics. In the classroom, the observer located the child listed on the form and coded the ongoing type of class organization, the type of interaction in which the child was engaged, and the nature of the activity. If it was a literacy activity, the observer coded what it was and how it was occurring. Later, the literacy activity was coded along two dimensions: Source and Literacy-Learning Process. Reliabilities for these categories were calculated by two trained observers separately coding the same observation notes of one observation day for one classroom and are reported at the end of each descriptive section following. We assume that the notes taken while actually observing in the class were accurate. A reliability value was calculated for each of the three dimensions, using the formula: total number of agreements for a category/total number of observations coded.

Dimension 1: Class Organization

Dimension 1 describes the overall structure of a classroom in a preschool or kindergarten setting. The categories include: Routine, Whole-Class, Small-Group, Free-Choice, and Other (for out-of-classroom activities).

Routine (R) consisted of the following activities: snack, picking up after an activity; transitions into whole-group, free-choice, or small-group activity; getting dressed or undressed; lining up to leave the classroom; and entering or leaving the class. When *all* the children were participating in R activities, then the round was not coded. Observers stopped taking notes until children returned to a learning activity. Often, however, transitions were ragged: Some children were still entering or picking up while others had moved into the circle for a whole-class activity or to the table for a small-group activity the teacher had begun. Thus, R was coded when some children were faster to make a transition into a routine activity or were slower to make a transition out of routine. Those who were engaged with the teacher in a non-routine activity were coded as Other.

Whole-Class (W) was defined as an academic structure intended to be available to everyone. In these classrooms, it usually occurred with children sitting on the rug. Some examples of W activities were: reading to children, sharing things from home, whole-group discussion of major events such as holidays or birthdays, music, rhythm, and recitation. Some activities, though bordering on R, were also coded as W activities. Singing, for example, might have been considered an R activity because teachers sometimes used it to quiet children or to help them become attentive and focused as a group. We coded it as a W activity because it was a group-directed action that involved learning a song often related to academics (e.g., colors, body part names, or numbers). Similarly, calendar time and roll call or attendance were coded as W rather than R when deliberate academic learning was involved (names on cards, numbers on calendar, etc.). When a teacher simply read out children's names for them to respond "present," we coded roll call as R, but when a teacher showed children's names on cards for them to recognize and respond to, we coded the activity as W.

Small-Group (S) was defined as an academic structure in which the teacher deliberately designed activities and materials for all children to use, do, or play with in small groups of about 6 children at stations in the classroom. In these classrooms, this period was usually arranged with three centers--two supervised by teachers and one (or more) unsupervised. The period lasted about 25-35 minutes, with children shifting during the period and spending time at each center. This coding described the classroom structure so that activities were categorized as S even when children were in an unsupervised area. That is, the activity was not categorized as free-choice (F). Some examples of S activities were: working on a project with the teacher to learn a concept (such as making a book or an art object),

listening to the teacher read a book, learning scientific concepts such as weighing, working on a computer, looking at a book, and building with blocks.

Free Choice (F), or "discovery time" as the teachers called it, was defined as a structure in which the teacher allowed all the children to choose materials on tables or at centers to use or play with during the scheduled length of time (usually about 30-40 minutes each day). Although a teacher might have been located in one of the areas, she was there to be available to the children, not to select their activity or tell them what they should do. F was coded when the teacher designated the time in her class schedule as discovery time and when the teacher allowed children to play before starting a lesson (sort of an extended transition between entering the classroom and beginning a teacher-designated activity). Examples of F activities were: playing at housekeeping, office or water-table, playing with blocks, writing, painting, shared reading with teacher or child, working with puzzles, and listening to read-along tapes.

Other (O) was a category used when none of the preceding categories was appropriate. It was used mainly when a child was absent from class at that given observational moment although present in school.

Overall, these categories worked out extremely well for coding the classroom organization, once clear descriptions had been established and distinctions made between R and O activities. These codes captured the teachers' intended class structure as well as the one that actually transpired. Observer reliability, based on 378 separately coded entries by two observers, was 98.94%. All data could be categorized into one of these categories.

Dimension 2: Interaction

The nature of a child's involvement in an activity was defined in part by what or who the child was paying attention to, that is, the teacher, another child, or some learning or play material. If the child was not attending to another person or material, then the child was considered non-involved, that is, not attentive to any activity in the classroom, or behaving in a negative manner (e.g., fretting, crying). If a child was involved with another person *and* was using material at the same time, the interaction was coded as one with a person, but when a child was principally or singularly involved with the material, then the interaction was coded as one with material. The subcategories of this dimension were: Material Interaction, Child Interaction, Teacher Interaction, Non-involvement, and Disruptive Interaction. The interaction subcategories are defined as follows:

Material Interaction (M) was defined as attention directed to the material at hand. For example, a child could be playing with a telephone, looking at a book, or painting. An observation was coded as M if the child was not looking at, listening to, or talking to another child or a teacher.

Teacher Interaction (T) was defined as the instance in which the child talked to, listened to, or watched the teacher do something related to the task at hand. It could have been a private (between only the student and the teacher) or a public interaction (in front of other students), and the teacher could be focused on one child or on the whole group.

Child Interaction (C) was defined as an instance in which the child was looking at another child. They could have been working together, talking or listening to one another, or playing with one another.

Non-involvement (N) was defined as the instance when the child was not paying attention to the task at hand, such as when daydreaming, walking around aimlessly, or scanning the room.

Disruptive Interaction (D) was defined as the instance when the child was not attending to the task at hand and acting in a disruptive manner, such as fighting, kicking, or screaming.

Most of the time coding of the Interaction dimension was clear, but there were times when observer judgment was required. Children could focus attention in any of the categories we defined. So, for example, when children were in a whole-class group activity, they could be focused on a material, the teacher, or another child, or they could be non-involved, or disruptive. When a child was in a small-group activity, a teacher could be talking, but the target child could be focused on the material. In instances like these, the observer had to judge whether the target child was paying attention to the teacher, the material, or was uninvolved in some way. The rule that observers followed for choosing the focus of interaction when a child's attention was divided between a person and material was to choose the person. For example, if the child was reading a book with the teacher, we coded the child's attention as being directed to the teacher instead of the material. This rule was used because for most activities in which the teacher was involved, the teacher controlled and directed the children for specific purposes. Similarly, when the target child was looking at, talking to, or listening to another child or the other child's material, the observer had to judge whether the target child was attending to the material or the other child. Again, observers chose a focus of child when a choice between child and material was involved. Moreover, another reason for not giving preference to a material code was because materials were involved in nearly all interactions. Discussions were the common exceptions. Thus, the material code was used only when the child was independently involved with materials. However, if children were indulging in parallel play and it was clear that the child was not really paying attention to another child, but rather to the object in hand, we coded the child's attention as being directed at the material. Observer reliability in these categories was 99.73%.

The combination of the first two dimensions of our coding system, Class Organization and Interaction, describe a context in which all activities took place. Activities in the third dimension, Activities, were judged to be either literacy or non-literacy. Then, if the activity involved literacy, we coded the nature of the literacy.

Dimension 3: Literacy Activities

If the child was involved in a literacy behavior, observers wrote a brief description of the activity and coded it at a later time. If the observers were not sure the activity was literacy-related, they described the behavior and made decisions about the activity at a later time. If the child was involved in a non-literacy behavior, observers left the column blank and later coded it 0.

We realized, even in the first month of our observation, that there was a wide range of literacy activities. Some were clear examples of involvement in literacy. These included selecting a book, listening to the teacher read a book, and following a read-along tape. Other activities seemed to be peripheral to literacy, or perhaps they indicated an early sign of interest in literacy, such as coloring, painting, cutting or folding paper the children were using. (We were undecided about others, such as counting with the teacher, or singing a song with letters or numbers.) Although the frequencies of literacy activities differed for each class, the range was certainly impressive, and we decided that we would continue noting all literacy-related activities with as much detail as possible. This was an important decision because it allowed us to code the data at a later time, when the final coding system was in place, so we were able to obtain not only the count of literacy activities but also some rich information about the types of literacy activities in which children participated. The depth of information we collected also enabled us to assess how much children changed over the year. It was of interest to us to know not only the frequency of literacy activities but also the exact nature of a child's involvement over time.

In addition to distinguishing which literacy event the child was engaged in (e.g., looks at a book, listens to teacher read a book, and so on), we also wanted to categorize the function or purpose of the literacy

event. Thus, we coded literacy activities along two dimensions. The first dimension, depicting the kind of literacy activity, was termed the Literacy Source, and the other, depicting the function of the literacy activity, was termed the Literacy-Learning Process. The steps to reach this dual categorization of literacy required several adjustments in the coding. We discuss next the steps we took to achieve this coding because it helps us explain the unique nature of literacy learning for emergent readers and writers in a school setting.

Literacy Source

We saw children involved in literacy activities of different types in the classes we observed. To capture emergent literacy activity as well as its variety, we clustered literacy activities with respect to five sources: *books, signs and labels, letters and counting, writing,* and *dramatic play*. We rearranged the clusters and added another category to reflect more similar events with *books, signs and labels, letters, counting and numbers, writing and use of literacy materials, dramatic play,* and *concept building*. We then separated writing and use of materials into two categories so that writing could be clearly distinguished. We also eliminated the last two categories, concept building and dramatic play, because we found that too many non-literacy events were being coded as literacy.

Initially we thought that it was important to record all concept-building activities, such as children using weights or observing the life cycle of a butterfly. We considered these events to contribute to success in school literacy. The problem was that almost everything could be coded as concept building, and thus, the category became unmanageable. Sometimes there were conflicts in judging which code to assign to an activity when these additional categories were included. When a teacher and children discussed concepts that helped in understanding text, we could not clearly assign a code for Text, because the activity was concept building as well. Eventually we decided that coding of language and concept building was beyond the scope of this research.

We eliminated dramatic play, which also included music, dance, and recitation, for similar reasons. Again, we felt that these aspects of language development were very useful to later literacy development, but most of the activities took us too far from monitoring the use of print. However, we recoded recitation of poetry as Text and alphabet songs as Letter. All the remaining music, dance, recitation and dramatic play activities became non-literacy activities.

The definitions for each of the final categories were as follows:

1. **Text**: Literacy-related activities received a coding of Text if a child was reading, listening to, discussing, looking at, selecting, sharing, or reciting *connected text*. The text could be a published book, a Little Book (McCormick & Mason, 1990), a book made by a child, an experience chart, a newspaper, or other form of extended print used to convey a message.

2. **Word**: A literacy-related activity received a code of Word if a child was reading, saying, looking at, or using a single word in isolation. The word could be an isolated word, child's name, sign, or label. However, if the child was writing a word, the literacy-related source code was noted as writing.

3. **Letter**: A literacy-related activity received a code of Letter for its source if a child was naming, locating, orally spelling, saying, or singing a song about an individual letter or letters of the alphabet. The letters could be on the rug, on the wall, or in some other written form. However, if the child was *writing* a letter, the source of the literacy-related activity was coded as writing rather than letter.

4. **Number**: A literacy-related activity received a code of Number for its source if a child was counting, naming, reciting, or comparing the quantities (more or less) with numerals. The numerals and numbers could be presented in written or oral form.

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5. **Writing and symbol production**: A literacy-related activity received a code of Writing for its source if a child was engaged in *writing* letters or words, drawing, painting, scribbling, typing (when letters actually appeared on the paper), or writing on a sheet of paper, a blank book, the chalkboard, or dictating to the teacher. The child's physical production of marks or symbols was essential for receiving this code. We included art activities in this category because making symbols is the initial stage of learning to write (Vygotsky, 1978).

6. **Ancillary literacy**: A literacy-related activity received a code of Ancillary literacy for its source if a child was engaged in events such as cutting, gluing, folding, stapling, paper-punching, filing, typing (with no letters appearing on the paper), pretend copying, working on computers, and watching a movie related to a text. Strictly speaking, these activities did not involve print, but they were coded as literacy-related because they involved use of literacy tools and could help children develop concepts about literacy.

Observer reliability in this dimension was 96.82%, averaged across the categories. The only loss of information that we had in adopting this scheme was the information about the target child's actual knowledge or learning of *specific* letters and words. Because we coded as Writing whatever the child wrote, when the child was using letters and words for writing, we did not keep precise information about which letters and words they were. However, we had to make the rule to avoid conflicts in judgment. The other conflict we faced was between letter and word when the child was spelling a word. In this case, the choice was difficult because the word and letters were being attended to simultaneously, but the judgments were resolved with discussion.

Literacy-Learning Process

Our goal in coding the literacy activities was to capture more than the literacy source. We were also interested in the nature of literacy learning. First, we tried to use Heath's (1983) categories of functions of literacy, based on her observations of families in three communities and how they used literacy. Our initial tryouts in the school setting revealed the inappropriateness of these categories for children who were in the process of becoming conventionally literate. Initially, we limited Heath's categories to the following: Instrumental, Social-interactional, Educational, and Recreational.

We modified the definitions to fit the classroom setting and set out diligently to apply these categories. However, we found there was a major problem with overlapping categories. We had to keep making arbitrary rules, and eventually the categories lost their descriptive value. For example, in assigning the code Instrumental literacy, although the instrumental purposes of literacy seemed to be clearly demonstrated in places like names on cubby holes or name-tags to mark seating places, we ran into problems from the outset because there was a clear-cut instructional element involved, even in the instrumental uses of literacy. Coding the use of literacy as Instrumental meant ignoring the educational intent of the teacher. Students were not only using literacy for instrumental purposes, but they were being deliberately instructed to acquire knowledge of using print for the purpose of achieving information or solving practical problems, as well as learning to recognize the print itself. Learning about print or its properties or functions hampers judging the appropriate coding between Educational and Instrumental. For instance, a teacher showing cards with children's names for attendance or for purposes of forming groups expects that the children be able to recognize their names and do what the teacher wants them to do. All these things could be easily achieved by simply calling names, but in this instance, the teacher clearly had another objective in doing these activities, namely to call children's attention to some aspect of print and to educate children about its usage. As such, it was not conventional instrumental use of print in the way it would be in an out-of-school, adult-world context. The other codes also created difficulties. It was easy to assign the Entertainment code to any activity because teachers tried to make it interesting for the children. Similarly, almost any activity could be

coded as Educational because of the teacher's intent. Given the social nature of a classroom, the final code, Social-interactional, also lost its distinct meaning.

The categories had to have non-overlapping definitions, involve a minimum number of exceptions, and be reliable. To achieve these goals, eventually we totally revised the categories. Heath's categories were developed from "real life" home settings and did not fit or describe how children acquire literacy in school. Functionally-defined categories may be a good starting point for studying school literacy, but school settings have a unique culture with purposes and processes that differ from those of home environment. These differences are crucial for emergent literacy researchers and program directors to keep in mind. The underlying educational theme present in all school activities alters how literacy is introduced and used. For instance, in school the social-interactional use of literacy has a different meaning from that at home. Literacy is primarily studied in a social environment in school, whereas at home the social nature of the learning may be less directive or intentional.

To code school literacy, we developed a new model in which we emphasized not the *function* of literacy but the *process* of literacy learning. In the new model we tried to consider the unique nature of emergent literacy in a classroom setting. Utilizing a Vygotskian perspective (Mason & Sinha, 1993), we developed four categories for describing the literacy learning. The final categories that are presented next describe distinctive, nonoverlapping literacy learning processes, they minimize judgment errors, and they maintain coding reliability.

1. **Educating through modeling, demonstrating, and informing**: Literacy-related activities received this code if the teacher showed a child or a group of children how to do something, or informed them how to do a literacy task, so that the child or children could practice it at a later time. Occasionally, a child would model or demonstrate to another child. This could be done in an implicit manner if one child watched another child or teacher do something. Some typical examples were: watching another child write, listening to the teacher's instructions about a literacy activity, listening to the teacher read, or watching a teacher write a dictated story.

2. **Educating through guided participation**: Literacy-related activities were coded as Guided Participation if the teacher expected children to participate by actively discussing or carrying out a task under supervision. We felt the teacher used a social-interactional approach to help a child or group learn. The teacher often asked a child to try, or watched as a child tried an activity under supervision. In this type of activity, both the teacher and the child were actively involved, as opposed to activities involving modeling and demonstrating, in which the active responsibility for the task was with the teacher. There was a scope for a lot of dialogue, or supervised practice or joint participation. Some typical examples were: book or story discussion, doing a puzzle with the teacher's help, or choral reading or recitation.

3. **Educating through encouraging self-directed involvement**: Literacy activities were coded as Self-directed when the child tried out or practiced a new skill, operating at a more independent level than when coached. However, this does not mean that the child was alone. It does mean the child was in control of the activity. Some typical examples were: a child did a science experiment about buoyancy that had been demonstrated earlier by the teacher; a child engaged in pretend reading, writing or scribbling; or a child explained something to the teacher or another child (e.g., about a book she or he had made).

4. **Peripheral interaction**: Literacy-related activities received this code if a teacher or child initiated a personal communication that was not directly relevant to the immediate educational activity. A typical example of this type of activity was a child discussing a text-related topic, such as talking about her family after reading a story about a family. Another example was a discussion in which a child described liking a literacy activity.

These four categories captured the social nature of the learning process. They minimized judgment error. Observer reliability for this dimension was 94.71%.

Analysis of Data

We coded the data for computer analysis by creating numerical representations of each variable. A descriptive analysis of the Early Start program uses summed observations of all the children's behaviors as the unit of analysis and is presented in this report. Other analyses of the data could include grouping data by classroom to determine the relative use of literacy by each teacher, by instructional intervention to determine whether a literacy intervention increases the use of literacy in the classroom, or over time to evaluate increases in literacy use. The data could also describe literacy differences of children within classrooms and serve as a process variable for predicting later reading success (see Mason et al., 1991).

Results

The observations yielded rich descriptive data of literacy learning and use in the classrooms. We used our observation-based data in two ways. One was to obtain overall descriptive information about the Early Start program. The other was to evaluate the differences between the control and treatment group (see Mason et al., 1990). For all statistical analyses, SYSTAT (Version IV) was used.

The total number of observed activities for all children across all observation days was 16,952 for 243 children. This large number of observations yielded fairly reliable and stable information.

For the first dimension, Class Organization (see Figure 2), we found that the children engaged mostly in free-choice activities, with 36.66% of all observed instances falling into this category. The teacher-directed activities were aimed at the whole group of children (28.63%) more often than they were aimed at small groups (16.78%). There were very few instances of the child being out of class. The routine activities totaled 13.24% of the coded observations. One cautionary note: The actual number of routine activities was much higher because when all children were engaged in a routine (such as snack time, gym, getting ready to leave), we discontinued coding until a learning activity resumed. Thus, the percentage of routine activities reported here reflects the amount of routine found during transitions and when students are engaged in routine as part of a classroom learning or play activity (such as washing hands after painting or getting material out or putting materials away when others are working).

[Insert Figure 2 about here.]

To further describe the context of the classroom, we examined how the children focused their attention (see Figure 3). We found that the children worked independently with materials for about half of our observations (50.66%). Students interacted with a teacher for 28.48% of our observations, and they interacted with other children for 10.17% of the observations. It is very interesting to note that for all of our observations, we found the children non-involved for only 5.34% of the observations and disruptive for only .64% of the observations. We were pleased to see that a program based on an informal instruction model, implemented with very young children who were predicted as being at risk for future school failure, worked with respect to active student involvement.

[Insert Figure 3 about here.]

To understand the nature of the activities, we first looked at how much literacy was involved (see Figure 4). We found that the children were involved with literacy for 35.44% of our observations. By analyzing only the literacy activities (see Figure 5), we found a great deal of variety in the sources and in the process of literacy learning. We found that the children were engaged with connected texts for 38.35% of our literacy observations. They were involved with writing and ancillary literacy activities for 22.2%

and 22.04% of observed literacy activities, respectively. They were involved with numbers for 9.02% of our observations and with words and letters for 5.21% and 3.18%, respectively, of our observations. The results presented in Figure 5 indicate that children were less engaged with the elements of texts (e.g., letters and words) and more with forming concepts about literacy.

[Insert Figures 4 and 5 about here.]

The literacy-learning process that these teachers used most often was that of encouraging students to self-direct their activities, with 46.86% of our observations falling into this category. The teacher- or peer-modeled or demonstrated process was used for 35.94%, and guided participation was used for 14.86% of our literacy observations. Peripheral interactions took place for only 2.38% of our observations. These results indicate that the teachers of the Early Start program try to start where the child is, introduce a new bit of information, and then help the child practice the literacy concept.

[Insert Figure 6 about here.]

Conclusion

We attempted to use the emergent literacy theory to develop categories for observing the unique nature of the Early Start classroom literacy practices. An emergent literacy classroom differs from traditional classrooms in that it appears to be more informal. However, it is consciously directed at helping children acquire concepts and interests in literacy. We had to consider the process of acquiring literacy as well as the context of the classroom. On this instrument of observation, we developed categories for many forms of literacy acquisition behavior, such as scribbling, pretend reading, or playing office, that would probably be discarded by conventional measures as being non-literate. The uniqueness of the Early Start preschool classroom context is captured by considering the dimensions of classroom organization, interaction, and the process of literacy acquisition.

This technique of observation is useful to both researchers and educational practitioners. Our study illustrates the way it can benefit researchers. The procedural data can be used to predict in very specific manner both how and what type of classroom practices affect children's literacy acquisition (see Mason et al., 1991). It also provides a rich descriptive account of what was the nature of literacy within a classroom context. In this study, we were interested in text usage in the classroom. The observation gave us detailed information about *how* the text was used within the classroom context. There are various ways in which emergent literacy in the classroom can be studied using this instrument. For example, class organization literacy sources and the effectiveness of teacher- and child-directed literacy tasks could be studied. This observation scheme yields rich information about any given area of interest (e.g., text) within the actual classroom context.

Administrators and teachers would find it useful to study the implementation of an emergent literacy curriculum in classrooms. The descriptive data from observation could help evaluate the program and uncover ways to improve it. For example, a teacher might want to further enrich her or his teaching by finding out what areas she or he is currently emphasizing and what needs to be increased or decreased. In short, this observation scheme can provide guidelines to create a balanced program. Moreover, observations such as those gathered with this format are useful for the teacher to determine how individual children select tasks and what kind of assistance they need.

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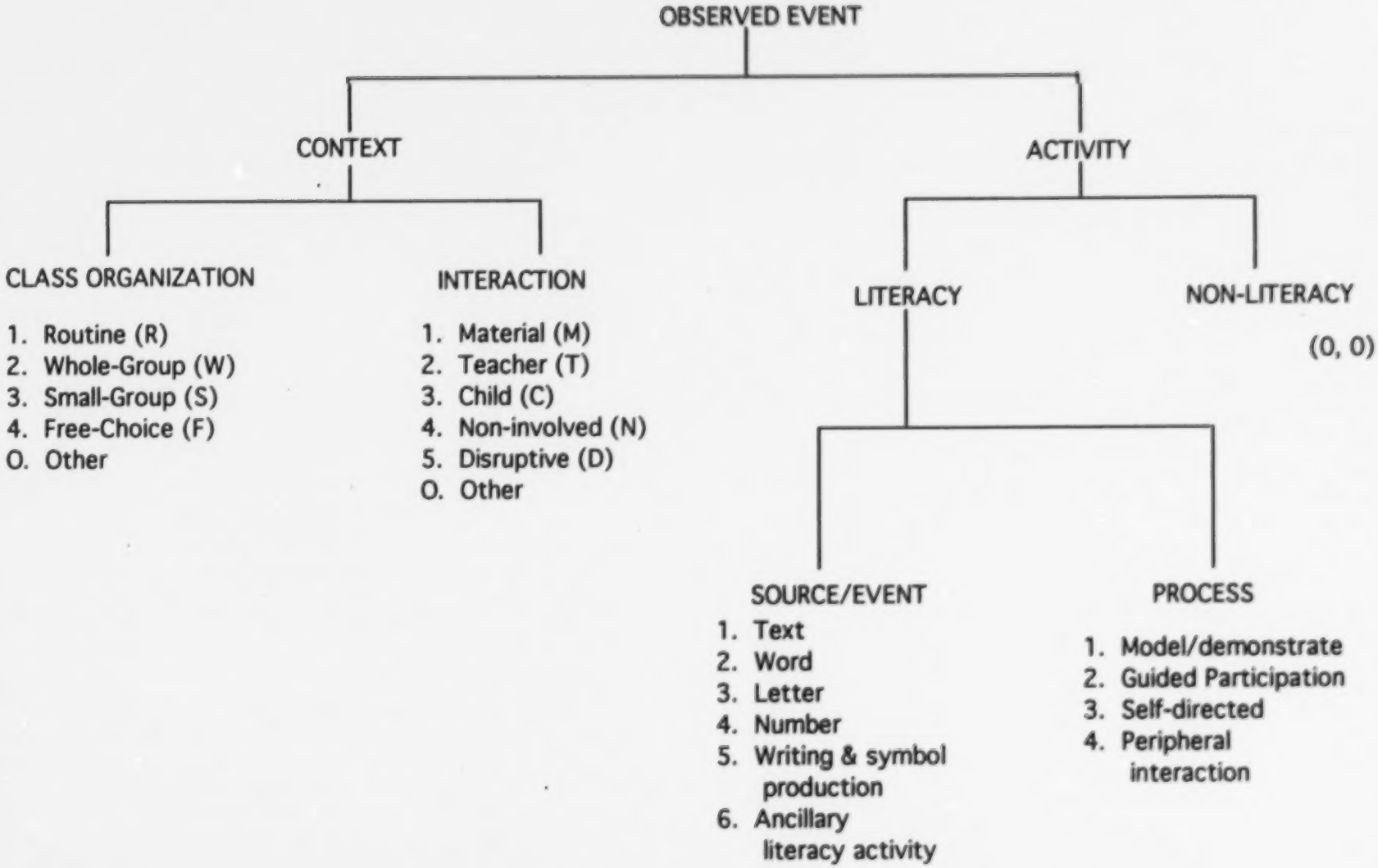
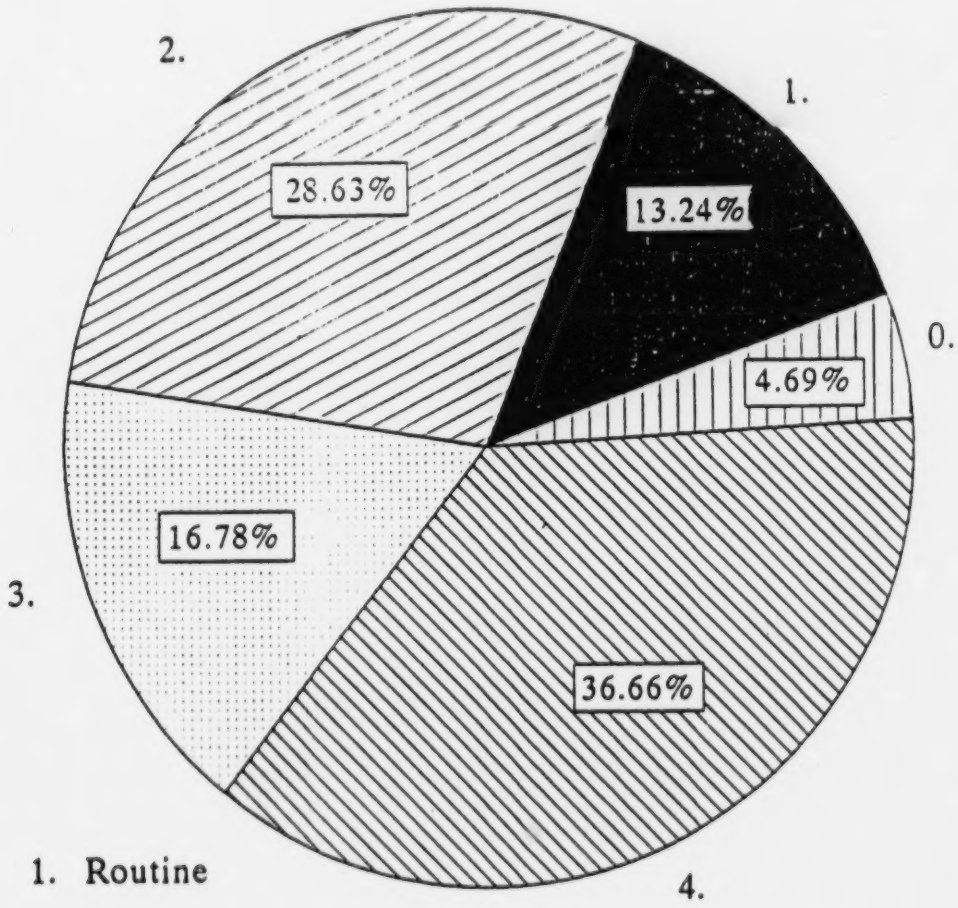


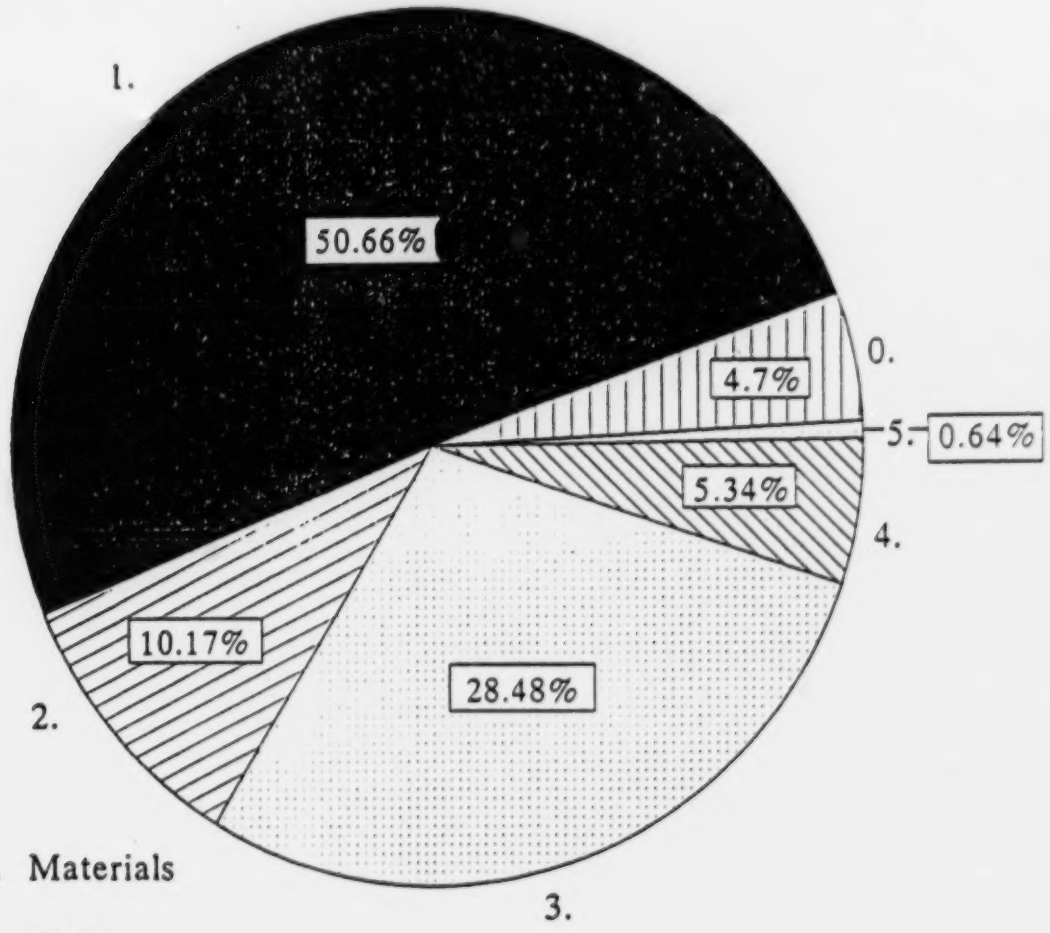
Note. Letters represent coding during observation. Literacy event was described in detail. Numbers represent the actual coding of data after observation.

FIGURE 1. Coding of Observed Events



1. Routine
2. Whole-group
3. Small-group
4. Free-choice
0. Other

Figure 2. Class Organization in an Early Start School Program.



1. Materials
2. Child
3. Teacher
4. Non-involved
5. Disruptive
0. Other

Figure 3. Types of Interaction in an Early Start School Program.

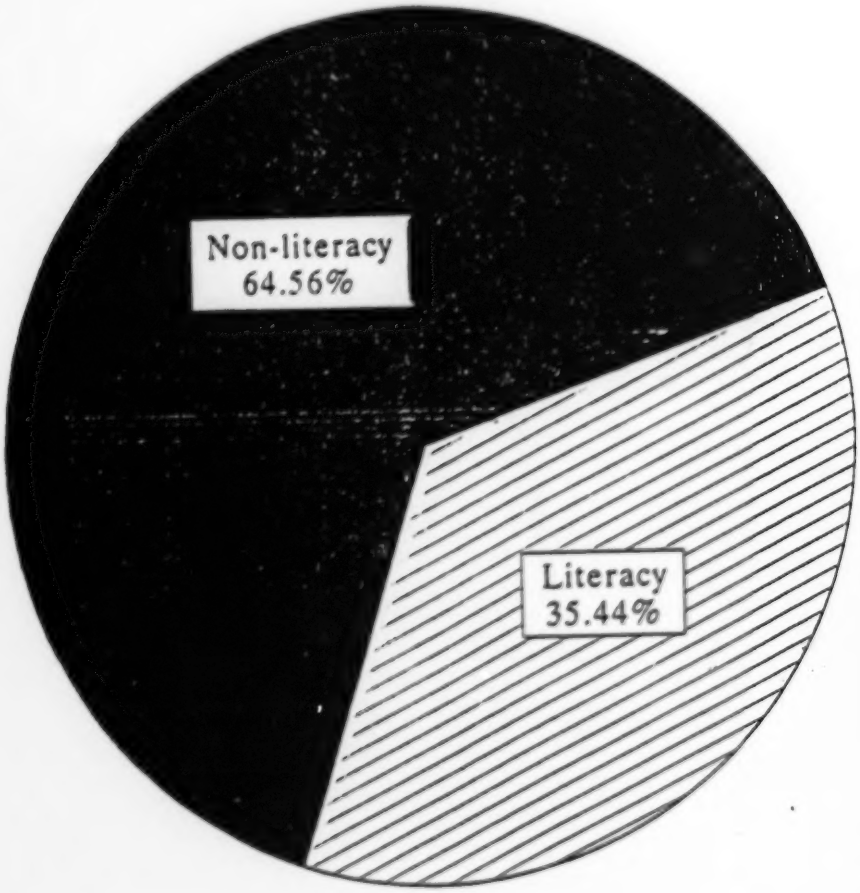
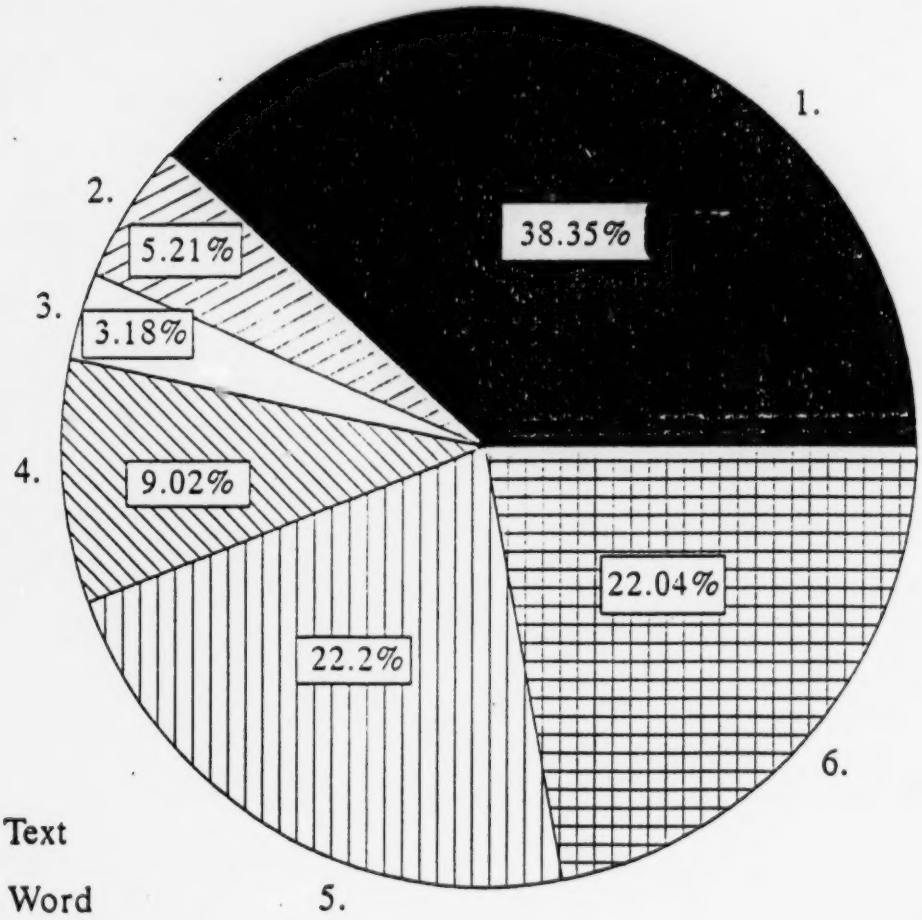
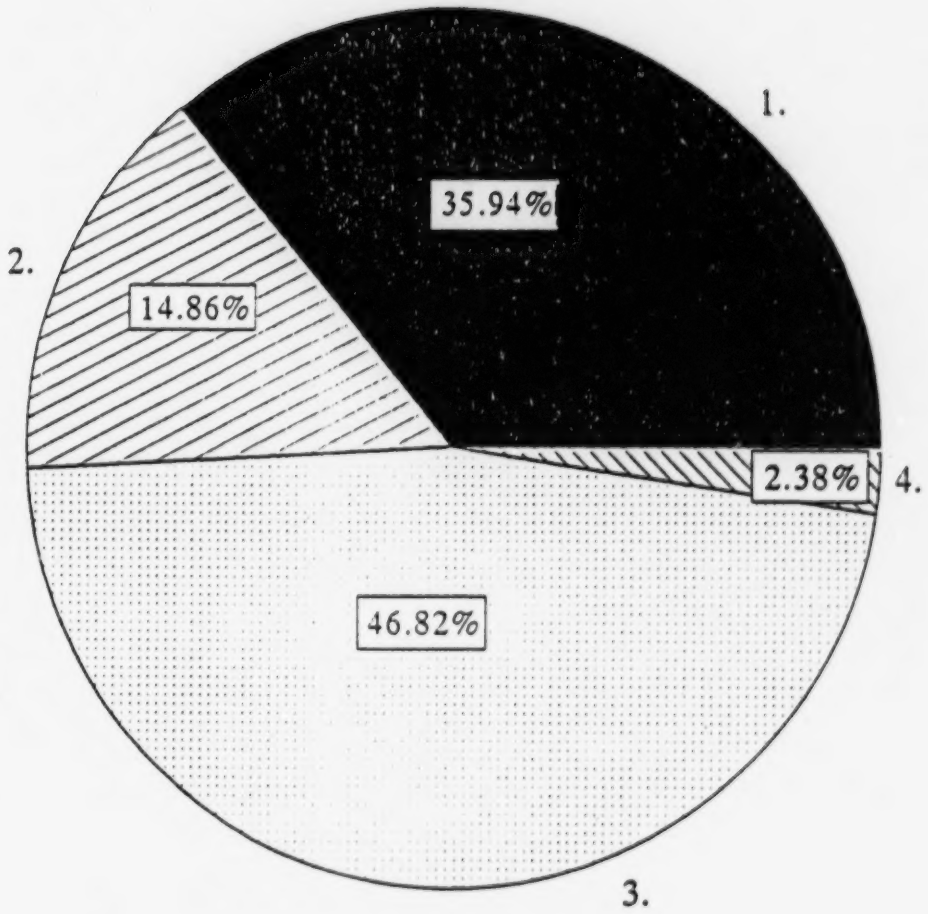


Figure 4. Literacy Activities in an Early Start School Program.



1. Text
2. Word
3. Letter
4. Number
5. Writing and Symbol Production
6. Ancillary Literacy Activity

Figure 5. Source of Literacy Activities in an Early Start School Program.



1. Model, demonstrate, & inform
2. Guided participation
3. Self-directed involvement
4. Peripheral interaction

Figure 6. Literacy-Learning Process in an Early Start School Program.

APPENDIX A

Example of an Observation Sheet

Teacher: Ms. Smith, am					Observer: Date:		
	Name			Behavior Time: 11:31 19			Behavior Time: 11:31 20
		1°	2°	3°	1°	2°	3°
301	Tia	S	T	Draw with crayon	S	M	Counts 5 bears
302	Eric	S	T	Shows T his crisscrosses	S	M	Counts 5 bears
303	Charles	S	T	Watches T write his name	S	M	Counts 5 bears
304	Cassie	O	O	Absent	O	O	Absent
305	Andrea	O	O	Absent	O	O	Absent
306	Latasha	S	T	Listen to T give 3-step directions	S	M	Cutting
307	Jennifer	S	M	Recites *Look at Me* with small copy	S	M	Selecting book
308	Jordin			Left the program			Left the program
309	Latanya	S	M	Recites *Look at Me*	S	M	Reads *Snowman* to teacher
310	Angela	S	T	Listens to teacher give 3-step oral directions	S	M	Draws with crayons
311	Stacy	S	T	Acts out book *Look at Me* with group	S	M	Listens to other–read book to her
312	Luth	O	O	Absent	O	O	Absent
313	Marcca	S	T	Follows 3-step oral directions	S	M	Cutting out shape
314	Andre	S	f	Tries standing on head for *Look at Me*	S	M	Names pictures in *Hungry Little Caterpillar*
315	Robert	O	O	Absent	O	O	Absent
316	Derek			Left the program			Left the program
317	Jonathan	S	M	Counts out 2 bears	S	M	Counts 7 bears
318	Damien	O	O	Absent	O	O	Absent
319	Melanie	S	M	Using templates to draw	S	M	Watch T write her name
320	Trista	S	T	Looks at cover of *Look at Me*	S	M	Looking at the *Hungry Caterpillar*